

CLAIMS

What is claimed is:

1. An axle assembly comprising:
a first axle shaft defined substantially along a first axis of rotation;
a second axle shaft defined substantially along said first axis of rotation;
an electric motor defined substantially along a second axis of rotation transverse to
said first axis of rotation;
a first stage gear reduction driven by said electric motor;
a second stage gear reduction driven by said first stage gear reduction; and
a third stage gear reduction driven by said second stage gear reduction, said first axle
shaft and said second axle shaft driven by said third stage gear
reduction.
2. The axle assembly as recited in claim 1, further comprising a second electric
motor defined along a third axis of rotation transverse to said first axis of rotation.
3. The axle assembly as recited in claim 1, wherein said first stage gear reduction
comprises a drive gear which drives a single gear which mounts a pinion gear of said second
stage gear reduction.
4. The axle assembly as recited in claim 3, wherein said single gear and said
pinion gear are defined along a common axis of rotation.
5. The axle assembly as recited in claim 3, wherein said pinion gear is supported
by a single gear at one segment, a pinion bearing at a second segment and at a third segment
between the first and second segments by a bearing cage.

6. The axle assembly as recited in claim 5, wherein said bearing cage is mounted to a housing through a shim.

7. The axle assembly as recited in claim 1, wherein said first stage gear reduction comprises a drive gear which drives a single gear which mounts a pinion gear of said second stage gear reduction, said pinion gear drives a ring gear.

8. The axle assembly as recited in claim 7, wherein said ring gear is coaxial with said first axis.

9. The axle assembly as recited in claim 7, wherein said ring gear drives said third stage gear reduction.

10. The axle assembly as recited in claim 1, wherein said third stage gear reduction comprises a single speed electric carrier.

11. The axle assembly as recited in claim 1, wherein said third stage gear reduction comprises a two-speed electric carrier.

12. The axle assembly as recited in claim 1, wherein said third stage gear reduction comprises a includes a differential gear set substantially contained within the two-speed reduction gear set.

13. An axle assembly comprising:

a first axle shaft defined substantially along a first axis of rotation;

a second axle shaft defined substantially along said first axis of rotation;

a first electric motor defined substantially along a second axis of rotation transverse to said first axis of rotation;

a second electric motor defined substantially along a third axis of rotation transverse to said first axis of rotation;

a first stage gear reduction driven by said first and second electric motor;

a second stage gear reduction driven by said first stage gear reduction; and

a third stage gear reduction driven by said second stage gear reduction, said first axle shaft and said second axle shaft driven by said third stage gear reduction.

14. The axle assembly as recited in claim 13, wherein said first stage gear reduction comprises a drive gear driven by said first electric motor and a second drive gear driven by said second electric motor, said first and second drive gear drive a single gear which mounts a pinion gear of said second stage gear reduction.

15. The axle assembly as recited in claim 14, wherein said single gear drives a pinion gear of said second stage gear reduction, said pinion gear drives a ring gear.

16. The axle assembly as recited in claim 15, wherein said ring gear is coaxial with said first axis.

17. The axle assembly as recited in claim 16, wherein said ring gear drives said third stage gear reduction.